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ASTRONOMERS DIVIDED ON REALITY OF MARTIAN CANALS

Is there evidence of intelligent life on Mars?

Astronomers are divided in two camps on this question of interest this week with the red planet nearer earth than it has been for a century.

Debate centers chiefly about the straight lines on the face of the planet which have been seen by some observers. Adherents of the "life" theory maintain these are canals constructed intelligently to bring the waters of the polar seas into the desert regions. Skeptics say those who see "canals" are seeing things.

Here are arguments on both sides, as summarized by Dr. Heber D. Curtis, director of Allegheny Observatory.

The believers maintain:

1. That at least three experienced astronomers and many amateurs have seen and mapped many canals.

2. That a smaller telescope of six to 12 inches in better for seeing the canals than larger instruments.

3. That the more important canals have been mapped by different observers in essential agreement.

4. That we do not see the actual channels but the wide, irrigated strips on each side.

5. That they lie on arcs of great circles, that is, are perfectly straight and this presupposes intelligent creation.

6. That they are realities, constructed by beings of high intelligence to preserve life on a slowly dessicating planet.

The skeptics maintain:

1. That the majority of skilled observers have been unable to see them.

2. That foremost astronomers, using the giant instruments at Lick, Mt. Wilson and Yerkes Observatories have been unable to see or photograph any such markings as have been mapped.

3. That Martian maps of Lowell, Pickering and Schiapparelli show great divergences.

4. That the best preparation for "seeing" the canals is to spend the previous day in studying a good map of them.

5. That lines to be visible on Mars would have to be at least 30 miles wide.

6. That only an ant or a fool would make absolutely straight canals, disregarding level contours, unless Mars is as level as an ocean.

7. That the lines have no objective existence, but are due to physiological and psychological factors which affect our perceptions of random shadings and features too mimute to be separately distinguished.

Dr. Curtis gives the following account of experiments conducted by the English astronomers, Evans and Maunder, which might account for "seeing the canals".

"Evans and Maunder drew on disks of card-board about six inches in diameter random hap-hazard drawings, lines and shadings. Then they put these disks up in front of classes of English school boys of twelve to fourteen years, and at such distances away that the disks subtended about the same angles as would Mars in a powerful telescope, In other words, the disks were placed so far away that it was very difficult to make out the details of them. The school boys knew nothing of the purpose of the experiment, and none of them had doubtless ever seen a map of Mars. Now it is well known to psychologists that the human eye has a tendency to group hap-hazard minute objects, too small to be separately distinguished, into straight lines. This is just what the school boys did, and a majority of the sketches which the boys turned in showed straight, canal-like markings, and many of them looked quite like a map of the Martian canals.

"I have this year tried this experiment on two Pittsburg audiences made up of unusually intelligent people. I first threw on the screen a good clear "map" of the canals and let it stay there a while. I next threwon the screen some lantern slides made from one of Evans and Maunder's drawings, but made so small that it looked to the audience about the same size as the disks did to the school-boys, or as Mars does in a powerful telescope.

"Many intelligent observers in both audiences, straining their eyes to see the details, affirmed that they saw canals, and that these were straight, and not crooked. They ought, in fact, to have seen them, if their eyes were all right. Then a larger slide of the drawing was thrown on the screen, to show them that there was not a single straight line on it!

"Many, perhaps the majority of astronomers, believe that some such explanation as this is the true basis of the "canals", that skilled and honesty and sincere observers have been, in effect, deceived by a perfectly natural and well-known peculiarity of the human eye when we use it to try to see things that are really too small to see separately."

By wearing a pedometer, an Iowa farm woman found she usually walked five miles each day in preparing meals for her family of three.

ENCKE'S COMET RETURNS TO NEIGHBORHOOD OF EARTH

Encke's comet, the most frequent of such visitors in the solar family, has just been sighted at the Yerkes Observatory, according to telegraphic information received at Harvard and distributed to astronomers in American and abroad. This is the forty-second return of the comet since it was first discovered in 1786.

Encke's comet is remarkable for its short period of revolution around the sun - about three and a third years - and especially for the peculiar variations in that period. No other comet returns at such short intervals to the vicinity of the sun, though many of them make closer approaches. At its greatest distance Encke's comet is four hundred million miles from the sun, nearly out to the orbit of Jupiter. At perihelion, when nearest the sun, it is withing the orbit of Mercury, about thirty million miles from the sun's surface.

Though discovered and lost two or three times in the eighteenth century, it was not until about one hundred years ago that Encke's mathematical studies connected the various discoveries and revealed the nature of the orbit and period. The investigations by Encke and later astronomers showed that, after making allowance for the perturbing effects of nearby planets, the period of revolution is continuously decreasing by approximately two and a half hours each revolution. Russian astronomers in particular have paid close attention to this unprecedented behavior.

The only satisfactory explanation is that the comet is hindered by obstructing matter as it moves through space. The resisting medium acts in a somewhat paradoxical manner. The comet tends to fall toward the sun when its motion is hindered, taking up a new position where the natural speed is greater. The obstruction, therefore, makes the comet go more rapidly and shortens its period of revolution. Whether this resisting medium is of the nature of a swarm of meteors, or is material more uniformly distributed throughout space, astronomers cannot tell. Other comets, however, have not suffered such pronounced changes of period, suggesting that the disturbing factor is not widespread throughout the solar system.

Encke's comet is not likely to be a conspicuous object on this visit, for it is one of the smaller bodies of its kind. It very frequently misses discovery upon its return to the neighborhood of the earth and the sun. At its preent approach, when it was photographed by Professor Van Biesbroeck with the Yerkes reflector, it was of the sixteenth magnitude, therefore visible only with the greatest telescopes. It was then about five degrees southwest of the Pleiades.

Its motion will be followed in order to throw more light on the change in its period and on the unexplained resisting medium in the solar system.

British farmers are having to fight a new weed, that belongs to the mustard family, but smells like garlic.

A Division of Fur Resources has been created in the Bureau of Biological Survey.

AUGUST BRINGS MANY METEORS

Meteors or "shooting stars" may be looked for on almost any clear night this month. They belong to one of the best known of the meteor "swarms", the Perseids, and have a regular place in the heavens, from which part of them are dragged by the earth's gravity when our planet crosses their path. The Perseids appear to be following in the orbit of the great comet, 1862III, better known as Tuttle's comet, which has a period of 120 years. Unlike the Andromedes, which appear in November and are bunchedin their orbit so that greater displays occur some years than others, the Perseids show about the same frequency every year. So evenly are they distributed around their orbit that every yearein August when the orbit of the earth intersects the orbit of this swarm, a display of several weeks duration invariably occurs. The number seen in any one locality on any particular night may not be large, several in an hour, possibly, but the persistent watcher will find that there are few evenings this month when his search for meteors will not be rewarded by the appearance of at least several members of this swarm. They will come from the northeast late in the evening from the direction of the constellation of Perseus, whence their name Perseids, and they will leave a yellowish trail and move with the average meteoric velocity of twenty-five miles or so per second. In color and velocity they differ noticeably from the Andromedes, which are sluggish in their motion and reddish in color because they overtake the earth instead of meeting it. Also they are unlike the Leonids which also appear in November, but which we meet "head on" so thay they are very swift and leave vivid and persistent trails of green or bluish light.

Meteors or shooting stars, as they are sometimes misleadingly called, are but cosmic dust weighing individually, at most, but a few grains and made luminous only by the friction produced by their encounter with the earth's atmosphere. The color and vividness of their light and length of their trails depend on the velocity with which they are moving relative to the earth when they penetrate our atmosphere. The morning meteors, not "head on", being swift, brilliant and bluish, the meteors of the early evening, which overtake the earth, slowly moving and reddish. The Perseids come midway between these two types for, appearing around midnight, they move with average speed and are yellowish in color.

Why some swarms of meteors, such as the Andromedes, should be so densely packed in one part of their orbit, while others, such as the Perseids, are distributed in a uniform ring around their orbit is not very clear, unless a swarm becomes more evenly distributed with age. The Perseids are traveling in the orbit of a brilliant comet of long period while the Andromedes are the remmants of Biela's small comet of six year period which after very close encounters with the earth in the earlier part of the nineteenth century divided into two comets and finally went literally to pieces in the form of bunchedswarms of meteors scattered along its path, which we now call the Andromedes because they come from the general direction of the constellation of Andromeda, or the Bielids, in recognition of their connection with the former comet of this name.

It is a noteworthy fact that there appears to be little if any connection between the periodic swarms of meteors and the large meteorites or fire-balls, which weigh many pounds or even tons, and which fall to the surface of the earth and are frequently recovered and placed in our museums. There is but one instance of a meteorite being seen to fall to the earth during a shower of meteors. In fact it has been found that in general meteorites are more frequently seen in May and June when meteor showers are fewest.

CARBON DIOXIDE MAY MAKE DRINKING SAFER

In pre-Volstead days carbon dioxide was used in the preparation of alcoholic beverages to make them more drinkable. Now it may be used after drinking to revive "dead drunks" who have imbibed not wisely, but too much - so much, in fact that their lives are in danger.

Dr. F. T. Hunter and Dr. S. G. Mudd of Boston, have tried the effect of carbon dioxide administration in a few cases of acute alcoholic intoxication with results indicating a comparatively rapid revival from the coma. Also in studies of normal persons receiving measured doses of alcohol it was apparent that the increased ventilation produced by breathing carbon dioxide caused a more rapid fall in the concentration of alcohol in the blood than occurs when the breathing is not stimulated in any way. As the majority of deaths from alcoholism occur from the ingestion of lethal doses of alcohol and not from other poisons in the beverage, the two physicians suggest that the administration of carbon dioxide may be of value in all cases of alcoholic coma.

The results are obtained by augmented respiration. Carbon dioxide can be diluted in air or oxygen for inhalation. A five fold increase in the volume of breathing, the doctors state, can be produced safely. It has been in wide use for some time for resuscitation after carbon monoxide poisoning and as a means of rapid doetherization after operations.

"BIRTH CONTROL" AMONG PLANT LICE DUE TO LIGHT

An important step in the solution of one of the most puzzling biological problems that confronts students of crop pests has been announced in the publication of the results of researches on plant lice, carried on by Simon Marcovitch, entomologist at the Tennessee state experiment station.

Plant lice, or aphids, as they are more properly called, have a most peculiar system of reproduction. Each fall, after mating has occurred, the female lays her eggs and dies. In the spring these hatch, and the young are all females - the plant louse is about the most advanced feminist in the lower animal world. These spring-born females have no wings, but many or even all of her first broods of offspring (for she rears many families) may have wings, which enable them to migrate to other plants, frequently at a considerable distance. The really remarkable thing about the spring and summer broods, however, is that the young are produced without fathers. Males seem to be totally unnecessary in this Adamless insect Eden all summer long, and these "parthenogenetic" females have everything to themselves. ("Parthenogenetic", by the way, is simply Greek for "virgin-born").

But in the fall, when the days grow short and chill, males appear among the fatherless children, and the next generation - the eggs that will lie in sheltered places over winter - are the results of ordinary matings. Thus the cycle is completed.

The question has always been, why should males appear in the fall, after having been kept out of the way all summer? The answer commonly accepted until now is that the cool weather is the stimulus. But Mr. Marcovitch's experiments indicate that length of day, and not temperature, is the cause.

Aphids kept at summer temperatures produced males as soon as the days grew short in autumn, but when the days in the laboratory were artificially lengthened with electric light, the fatherless female generations succeeded each other, even though the temperature was allowed to fall to a low point.

An immediate practical application of his discovery is suggested by Mr. Marcovitch. The saving of orchards from severe damage depends on inducing the first broods in the spring to migrate from the trees to the other plants on which they feed. Mr. Marcovitch suggests that orchards be artificially lighted, just as they are now frequently heated, thereby inducing the winged generations to appear early and "move on" promptly. It might also be worth while to keep up the illumination in the fall, preventing the development of males, and thereby also preventing the production of fertilized eggs, which alone are able to live over winter.

DROUGHT-CRAZED JACKRABBITS OVERRUNNING IDAHO RANCES

Hordes of jack-rabbits are attacking farms on the south bank of the Snake river in Idaho, with the condition so serious that some ranches have lately been abandoned for the year.

Residents have observed rabbits hurling themselves into the river and swimming seventy-five yards to gain the north bank, where forage is more plentiful. The rabbits come across in hundreds, going into the river above upper Salmon falls and coming down stream below the falls. The low water makes the plunge through the falls possible.

Water holes in the Bruneau desert, on the south side of the Snake river, have gone dry, and the jack-rabbits have come down in droves to the junction of the Salmon and Snake rivers, hunting water. They have eaten everything green, and even the roots of the alfalfa and parts of the hay stacks.

Fences intended to be rabbit-proof are of little aid, as the animals, crazed for food, have dug under the barriers. Cases are evident, also, where they have even broken through poultry netting placed below the ground. The north side of the river, where fences are better and there are fewer rabbits, has escaped without great damage.

Several drives have been made and large numbers of the rabbits killed, but neither drives nor poisons have materially offset the present situation.

DESERT INSECTS HAVE A HOT TIME

Toleration of heat to a most astonishing degree by insects that live in deserts is indicated by the results of researches published in the Proceedings of the Royal Society by P. A. Buxton.

Observing insects in the deserts of Palestine, he found some species quite active and cheerful when the midsummer sun raised the temperature of the sand to 140 degrees Fahrenheit. Temperatures of the insects themselves were also measured, and were found to be lower than might have been expected, due probably

to evaporation of water - though how the insects get the water to replace evaporation losses still remains a question. Mr. Buxton also found that the color of the insects had considerable influence on the body temperature; dark specimens were frequently eight or ten degrees warmer than their lighter-colored brethren.

One possible source of water in the desert is suggested in the same research. The scanty plant growth in these regions has high powers of absorption through the leaves and stems, and can thus gather in much water from the dews that fall at night even in the desert. Fragments of plant material with their absorbed water are eaten by the insects, which in turn become a source not only of food, but also of water for birds, lizards, and other animals.

PHILIPPINOS MAKE SAUERKRAUT OF FISH

Sauerkraut is an ancient and wholesome if odoriferous way of putting up vegetable food for a season when it would not otherwise be available. Sauerkraut was the result of racial experience in a cold climate, and it is curious to note that the same principle was utilized long ago by the Malays in preserving fish when plentiful for a time of scarcity.

In the Philippines enormous schools of very tiny young fish, a half inch to an inch and a half in length, enter the mouths of rivers during the months from September to March. They are especially abundant in the rivers of Northern Luzon, and the Ilokanos catch "ipon", as it is called, by thousands of tons.

Ipon fried in oil and eaten fresh is delicious, but most of the catch is used to make "bagoong". In a huge crock eighteen inches to two feet or even more in diameter is placed a layer of salt, then a layer of "ipon", and more layers of salt and fish alternately until the jar is filled. A weight is then put on, and a banana leaf tied tightly over the top to keep out flies and dirt and the jar put away. Bacterial fermentation begins and continues until arrested by its own waste products, just as in sauerkraut.

After a month the "bagoong" is ready to use and forms a piquant and much needed addition to the rice which is the chief article of Philippino diet. The liquor is also poured off and used as sauce or flavoring. Much of the bagoong not needed for home use is packed in five gallon oil cans for shipment.

"Ipon" are the young of half a dozen species of gobies which live in the rivers of the interior, even in the remotest mountian streams. By means of their sucking disks gobies are able to ascend streams impassable to most fishes. When mature, the gobies go down to the sea and spawn not far from land. Such vast quantities of "ipon" are caught, especially at the mouths of the Cagayan and Abra rivers, that more than half a million pesos worth of "bagoong" is made, much of it being shipped to other parts of Luzon.

"Bagoong", if clean and well made, is wholesome and nutritious, and smells no worse than sauerkraut or many kinds of cheese. It is merely different, that's all.

PSYCHOLOGICAL RESEARCH PLANNED AT YALE UNIVERSITY

Announcement has been made by the authorities of Yale University of the establishment of a new institute for research in fundamental problems of psychology. This movement has come as a response to demands for basic data in psychology for use in industry, in medicine, in eduation, in social work, in child welfare, and in various public problems. The institute is to be an integral part of the university, and will be open tograduate students from all parts of the United States and from foreign countries. In addition to purely human psychology, the reactions of animals will be studied, for the light they can throw on certain phases of human behavior.

Three new members, all men of national reputation, have been added to the Yale faculty, to comprise the staff of the institute. Dr. Robert M. Yerkes has been called from the National Research Council at Washington, Dr. Raymond Dodge from Wesleyan University, and Dr. Clark Wissler from the American Museum of Natural History. Roswell Parker Angier, professor of psychology in Yale University, will act as chairman of the institute.

PSYCHOLOGIST EXPLAINS MYSTIC PHENOMENON

"I have a feeling that I have been here before".

This is a common remark. There is often a vague, intangible familiarity about new scenes or actions which has long furnished material for the musings of mystics.

On this phenomenon much of the arguments for previous existences have been founded. "Deja vu", the French call it.

Dr. J. T. MacCurdy of Cambridge University gave a scientific explanation to the psychologists of the British Association for the Advancement of Science.

The phenomenon can always be traced to an unconscious memory of a real event, a fantasy or a dream which in some way resembles the conscious perception of the moment.

This memory, althoughstimulated, does not enter into consciousness as such, but affects it only as an obsessive feeling of familiarity.

DULL WORKERS BEST ON BORESOME JOB

That the least intelligent are best suited to monotonous work and that the more intelligent are unsuited to boresome employment, are the findings in an investigation reported to the National Institute of Industrial Psychology by Isabel Burnet.

Two bright girls, one average, and one of less than average intelligence, worked for eight weeks at the job of cross-stitching canvas. The less intelligent began badly but improved enormously, while the more intelligent was able to reach a high output, but was unable to maintain it.

MILK FOR MOSQUITOES

When one sees a fish culturist milk a cow and then pour the milk into a pond, being informed meanwhile that the purpose is to raise mosquitoes, questioning the fish culturist's sanity seems to be rather justified.

In the rearing of game fish, however, one of the main difficulties is the supplying of live animal food in the form of creatures of a size that can be eaten by the newly hatched fish fry. In natural ponds where the number of fish is limited, the protozoa, bloodworms, cyclops, and ordinary insect larvae present are sufficient, but in the large scale production of a well conducted fish hatchery, every means of adding to the natural food in the ponds must be considered.

It is only the adult lady mosquitoes that bother our peace of evenings, and the "wiggletail" larva we often note in the rain barrels are exceedingly pleasing to very young fish. In turn, the milk being rich in nitrogen adds to the prosperity of the mosquitoes and great swarms of the wiggletails develop. Just before these larvae are ready to develop wings and come out of the water and annoy us, the fish culturist opens the sluice gates of the ponds where they are bred and allows them to sweep down to other ponds where the hungry fish fry wait.

The fish eat the mosquitoes; the fish culturist ultimately eats the fish,--and derives energy from them to milk the cow again. As Confucious says, "Thus turns the wheel of life".

THE USE OF "DOG" IN NAMES

There are many words of which "dog" forms a part, as in dogwood, dog-cart, dogfish and others. The origin of "dogwood" has caused much discussion. The most persistent explanation attributes the name to the Celtic language, as having connection with the word "dagger". In this explanation it is stated that the flowering tree was called "dogwood" because its exceedingly hard wood may be sharpened to a fine point. This quality caused it to gain early popularity as material for making skewers for meat, and the resemblance of the butcher's skewer to the better-known dagger or "dag", as the weapon was once known, caused the tree to be called "dagwood". This becamce changed to "dogwood"! Another explanation is that the word was applied to the tree as indicating inferiority, but no lover of dogs will accept this without an argument. The dog-cart takes its name from the circumstance that the two-wheeled carts used by English sportsmen had boxes in the rear for carrying the dogs to be used in the hunt. The dogfish took its name from the fact that the fish of this species of shark hunt in packs, after the fashion of hounds and beagles. An interesting circumstance illustrating this tendency is afforded by a historical incident of 1858, when an enormours shoal of dogfish, covering an area of many square miles, appeared along the north coast of Scotland.

HOW TO FEED FLIES IN CASE YOU LOVE THEM

Are you feeding your house flies properly?

These delicate creatures, so charming and desirable about the home, can't be happy and healthy on just "any old thing" you leave about for them.